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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/945,536 | 08/30/2001 | Paul A. Farrar | 303.469US3 | 2426 |

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EXAMINER

EVERHART, CARIDAD

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 09/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|---------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/945,536 | FARRAR ET AL. |
| Examiner | Art Unit | |
| Caridad M. Everhart | 2825 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 18-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 18-44 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) Interview Summary (PTO-413) Paper No(s) _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 18-25, 27-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin, et al. (US 6,271,591B1) ("Dubin") or over Besser, et al. (US 6,110,829) ("Besser"), or over Chen et al. (US 6,139,697) ("Chen") in view of the admitted prior art.

Dubin discloses metal contacts in which an alloy dopant has been driven into solid solution and the interconnect has been chemically mechanically polished (col. 4, lines 24-29; col. 5, lines 10-35). The dopants include Cu and Ti in Al (Fig. 7 and col. 4, lines 25-28). Dubin includes trenches (col. 1, lines 30-35).

Besser discloses a metal contacts in which an alloy dopant has been driven into solid solution (col. 4, lines 3-17). The method is disclosed as an improvement in the damascene method which is disclosed to include the interconnect be chemically mechanically polished (col. 1, lines 60-67; col. 2, lines 1-20). The dopant includes Cu (col. 4, lines 9-10). Besser includes trenches (ol. 3, lines 30-32).

Chen discloses metal contacts in which an alloy dopant has been driven into solid solution and the interconnect is chemically mechanically polished (col. 1, ines 35-45; col. 7, lines 2-24, and 40-53). The dopants include Cu (col. 3, lines 37-41). Chen includes filling apertures for forming lines, which would be trenches (col. 4, lines 63-67).

Dubin and Besser and Chen are silent with respect to a memory device. However, in the Background section of the disclosure, applicant has pointed out that the prior art devices include a memory device including circuitry and an array of memory cells. Therefore, one of ordinary skill in the art would have been motivated to have included the metal contacts disclosed by Dubin or by Besser or by Chen in the devices known in the prior art because Dubin and Besser and Chen teach metal contacts for use in semiconductor devices such as memory devices.

With respect to other limitations of the dependent claims, such as the temperature of anneal, these are method limitations and in examining device claims, the device limitations and not the product by process limitations determine the patentability of unpatentability of the claims (MPEP 2113).

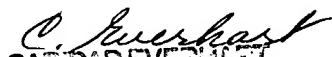
Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al as applied to claim 20 above.

In addition to the features discussed above, Chen discloses tapered openings (Fig. 2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caridad M. Everhart whose telephone number is 703-308-3455. The examiner can normally be reached on Monday through Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 703-308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


CARIDAD EVERHART
PRIMARY EXAMINER

C. Everhart
September 3, 2002